

Document Title: General description	Function Group: 200	Information Type: Service Information	Date: 2014/5/13
Profile: WLO, L180E [GB]			

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General description

The engine is a straight six-cylinder, turbocharged, four-stroke and direct-injected diesel engine with an air-cooled intercooler.

It has an overhead camshaft, four valves per cylinder and unit injectors.

The engine designation is D12DLBE3.

The engine is of low-emission version.

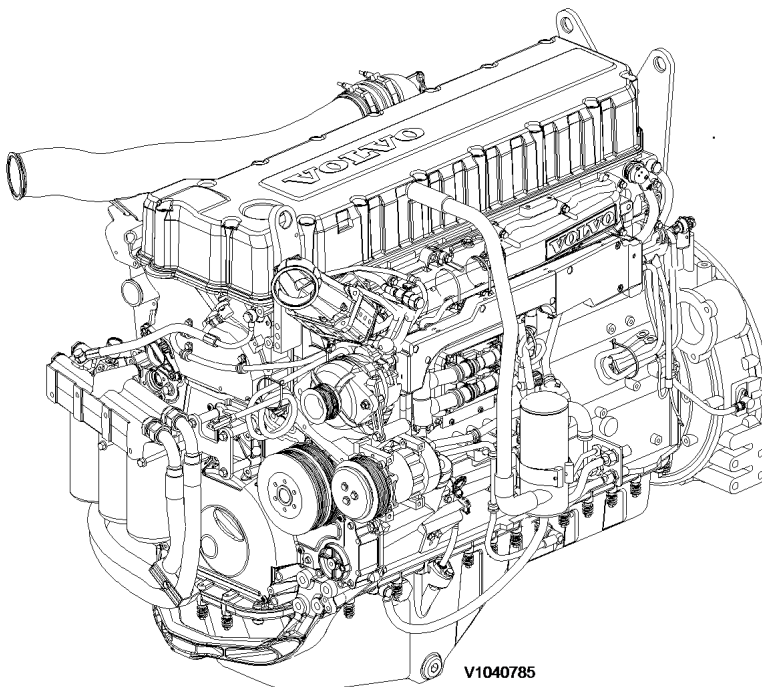


Figure 1

The cooling fan with vane motor is located in front of the radiator and is driven hydrostatically with a variable piston pump, Pump 3, (P3).

The speed of the fan is controlled by the vehicle ECU (V-ECU), which receives information about temperature in the following systems:

- Coolant temperature, radiator
- Coolant temperature, engine
- Transmission oil temperature
- Hydraulic oil temperature
- Temperature in front and rear axle (only when machine is equipped with axle oil cooler).
- Induction air temperature
- Charge-air temperature

Hydrostatically controlled cooling fan speed gives the engine high power as well as low sound level, since the cooling fan does not work at max. rpm as often.

The cooling system is based on a concept where cooling for engine, transmission, hydraulics and axle oil cooling (optional equipment) are integrated.

These systems' cooling depends on the cooling fan speed.

Engine identification

Identification plate 1

Engine designation, serial number, part number and assembly plant are stamped in one field on the engine block's left rear edge

Identification plate 2

A decal with the software's ID-number, the engine's serial number and assembly plant is located on the valve cover to ensure installation of correct ECU on the engine in production. On the back of the ECU, there is a decal indicating its hardware number.

Assembly plants:

A = Skövde, Sweden

E = Curitiba, Brazil

F = Flen, Sweden

L = Lyon, France

Identification plate 3

The certification decal is located on the valve cover as well as on the machine frame.

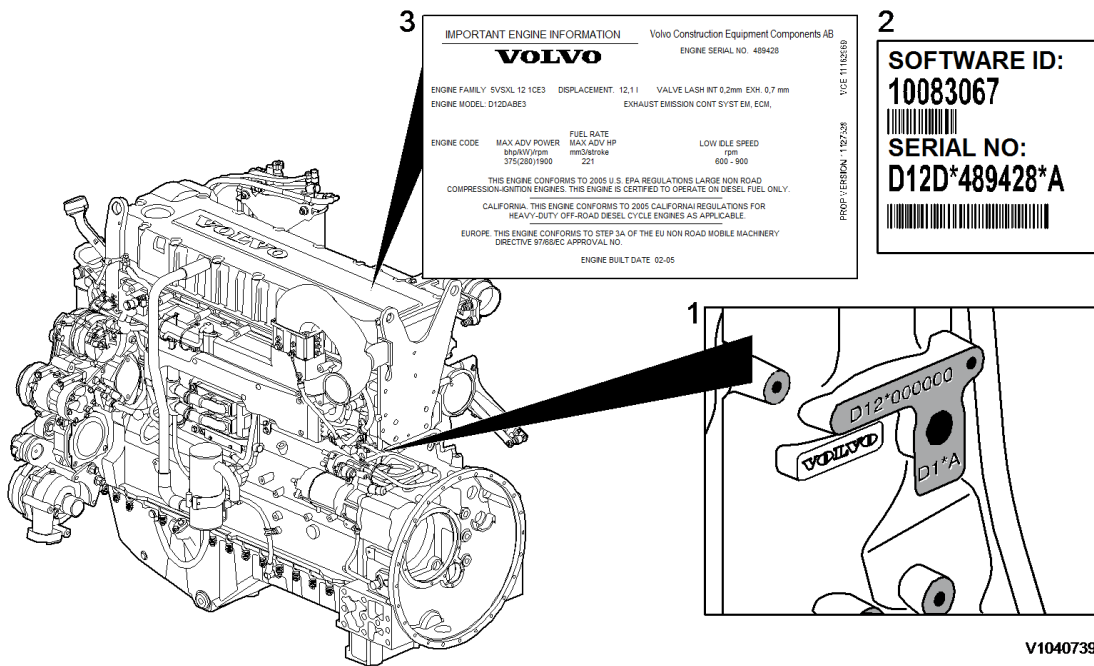


Figure 2
Engine identification, D12D

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Engine, removing

Op nbr 21070

[9998257 Lifting tool](#)

[9998547 Lifting device](#)

Bolt M14 x 35 mm, 2 pcs

Lifting eye M16, 4 pcs

1. Remove the engine hood, see [821 Engine hood, removing](#)

WARNING

2. **Risk of burns when removing the header tank cap because of excess pressure in the cooling system.**

Remove the cap from the header tank.

Drain the coolant. Use the drain hose stored in the right-hand battery box or the toolbox on the machine.

Volume: **approx. 41 litres (10.8 US gal) (approx. 3 litres (2.6 US gal) will remain in the engine block)**

Drain the oil if necessary. Use the drain hose stored in the toolbox on the machine.

Volume: **approx. 48 litres (2.7 US gal).**

Remove the clamp securing the oil drain plug.

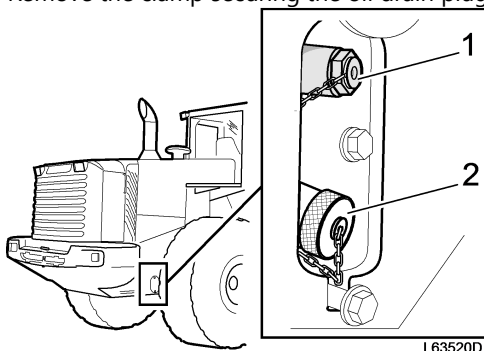


Figure 1

1. Draining the coolant
2. Draining the engine oil

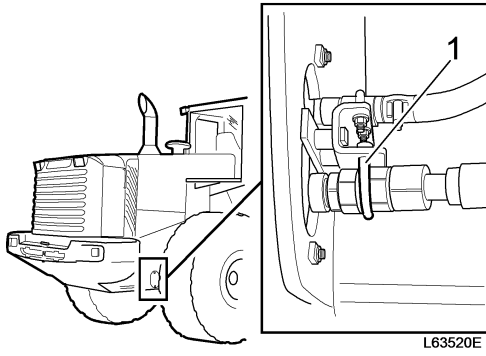


Figure 2

1. Clamp
3. Disconnect the oil pipe between the flywheel housings and the hydraulic transmissions from the flywheel housing.
 - Disconnect the hose to the cab heater from the engine block.
 - Remove the charge air pipe. Remove the header tank.
 - Remove the upper radiator hose.
 Disconnect the cable to the optional engine heater.

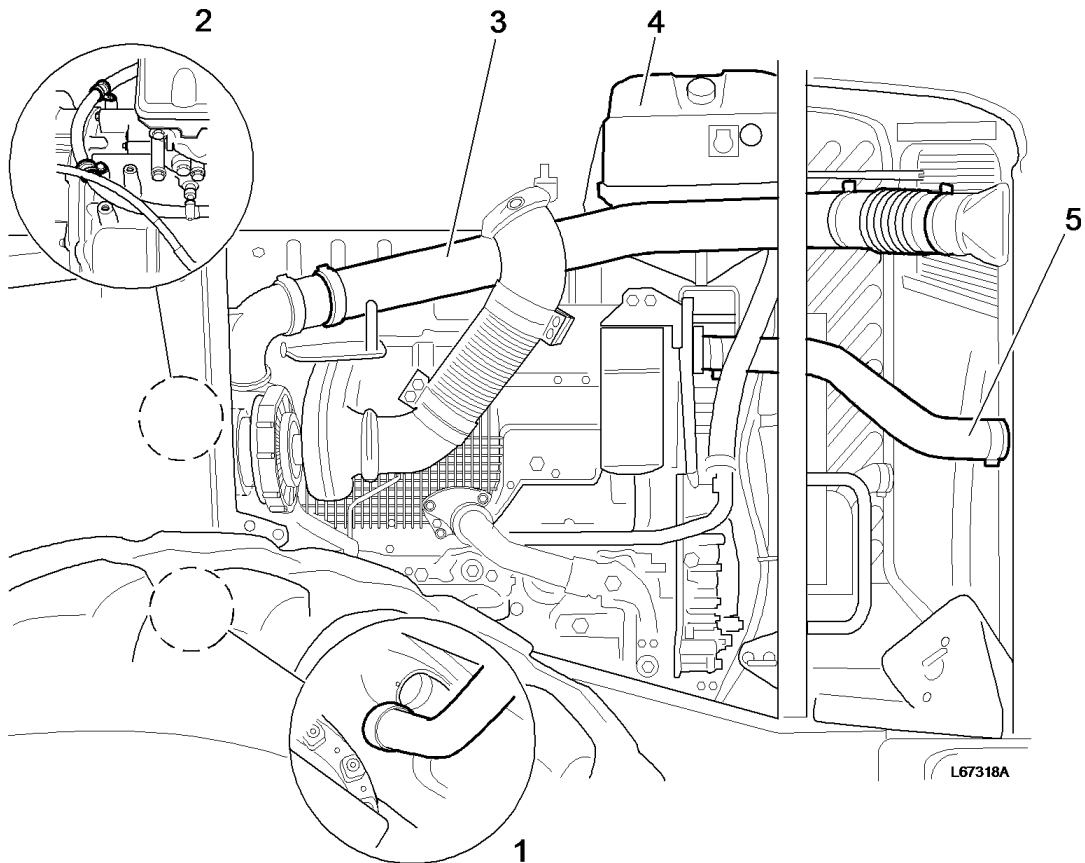


Figure 3

1. Oil pipe
2. Hose to cab heater
3. Charge air pipe
4. Header tank
5. Upper radiator hose

4. **WARNING**

Do not disconnect or loosen connections for the air conditioning unit (AC). Risk of gas leakage.

Remove the condenser and place it on the radiator.

- Detach the receiver drier. Remove the protective plate.
 - Detach the lower radiator hose from the engine.
 - Disconnect the fuel lines from the fuel pump and fuel filter.
 - Remove the charge air pipe and the hose between the preheating coil and radiator.
 - Remove the relay and clamps along with the bracket located on the member behind the hydraulic tank.
 - Disconnect the connector from the E-ECU, the cables from the starter motor and the connector from the oil level sensor.
 - Undo the alternator at the adjustment point for the belt tensioner. Remove the belt.
 - Unplug the connectors by the A/C compressor.
- Remove the A/C compressor from the engine.

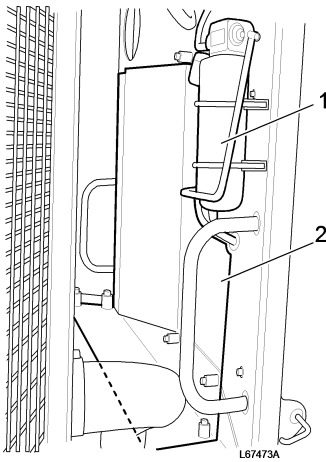


Figure 4

1. Receiver drier
2. Protective plate

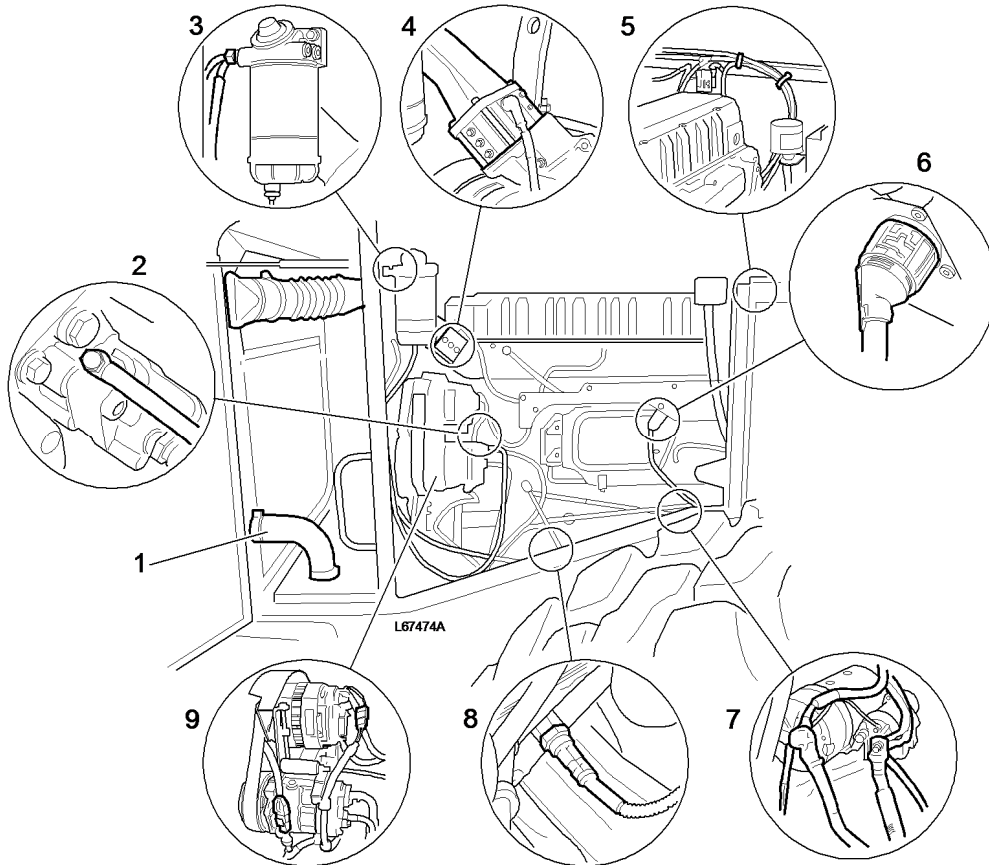


Figure 5

- | | |
|------------------------------------|--------------------------------------|
| 1 Lower radiator hose | 6 Connector, E-ECU |
| 2 Fuel line, fuel pump | 7 Wiring, starter motor |
| 3 Fuel connection, fuel filter | 8 Connector, oil level sensor SE213 |
| 4 Charge air pipe, preheating coil | 9 Alternator, compressor, connectors |
| 5 Relay, clamp | |

5. Remove the side panels.

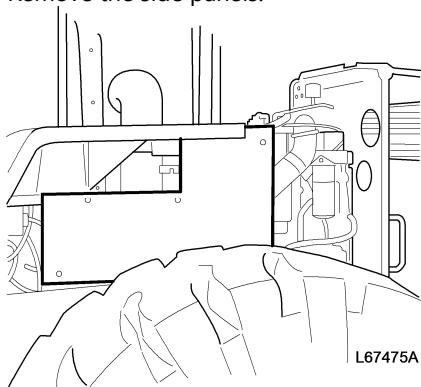


Figure 6

6. Remove the partition wall.
 Partition wall, weight: **approx. 45 kg (approx. 100 lbs).**

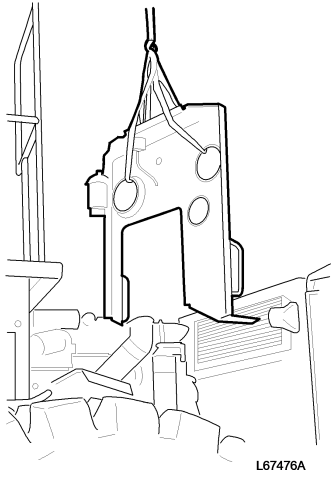


Figure 7

7. Secure the hydraulic transmission in place with a sling and a ratchet blocks as illustrated.

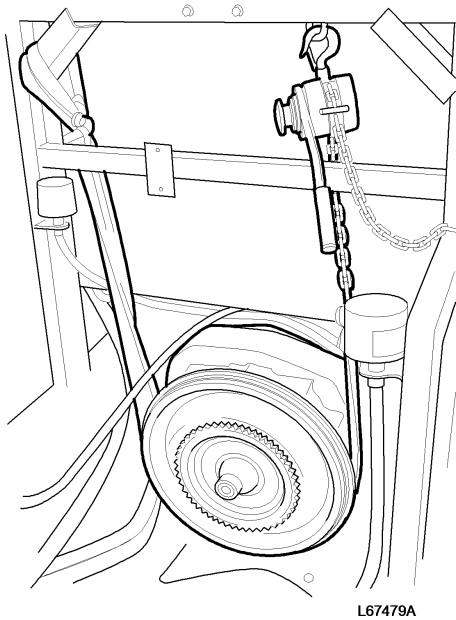


Figure 8
Hydraulic transmission secured (engine removed)

8. Fit tool 9998257 and connect 9998547 and a lifting device to the engine.

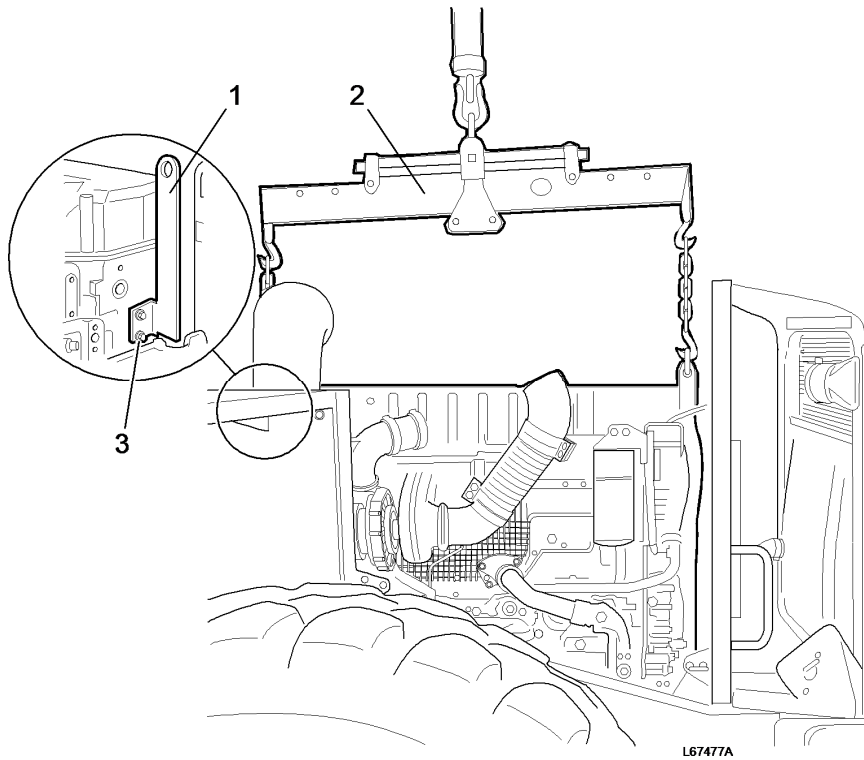


Figure 9

1. 9998257
2. 9998547
3. Bolts M14 x 35, 2 pcs

9. Remove the retaining bolts securing the hydraulic transmission.

NOTE!

To remove one of the bolts, remove the protective plate by the gear selector valve.

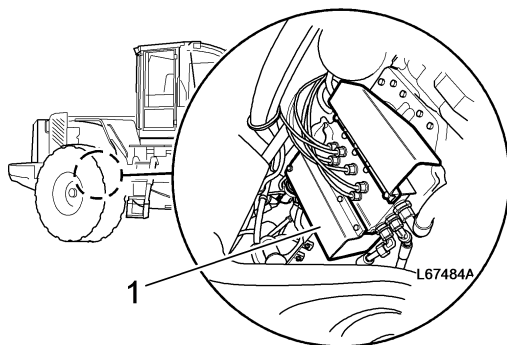


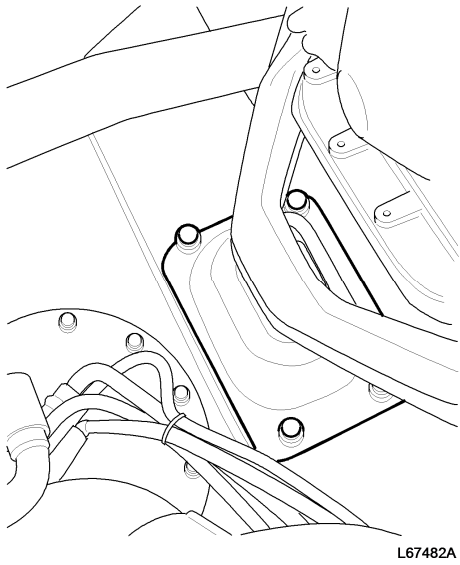
Figure 10

1. Protective plate

10. Remove the bolts securing the engine mounting.

Remove the engine.

Engine's weight, including oil: **approx. 1350 kg (approx. 3000 lbs).**



L67482A

Figure 11

11. If changing the engine, transfer the components required to the new engine.

NOTE!

Never transfer a component that could cause a malfunction.

Thank you very much for reading.

This is part of the demo page.

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